(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
9 June 2005 (09.06.2005)

PCT

(10) International Publication Number
WO 2005/053030 A1

(51) International Patent Classification[7]: H01L 29/778, 29/737, 27/082, 27/06, 29/10

(21) International Application Number:
PCT/GB2004/004722

(22) International Filing Date:
8 November 2004 (08.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0326993.3 20 November 2003 (20.11.2003) GB

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:
— *of inventorship (Rule 4.17(iv)) for US only*

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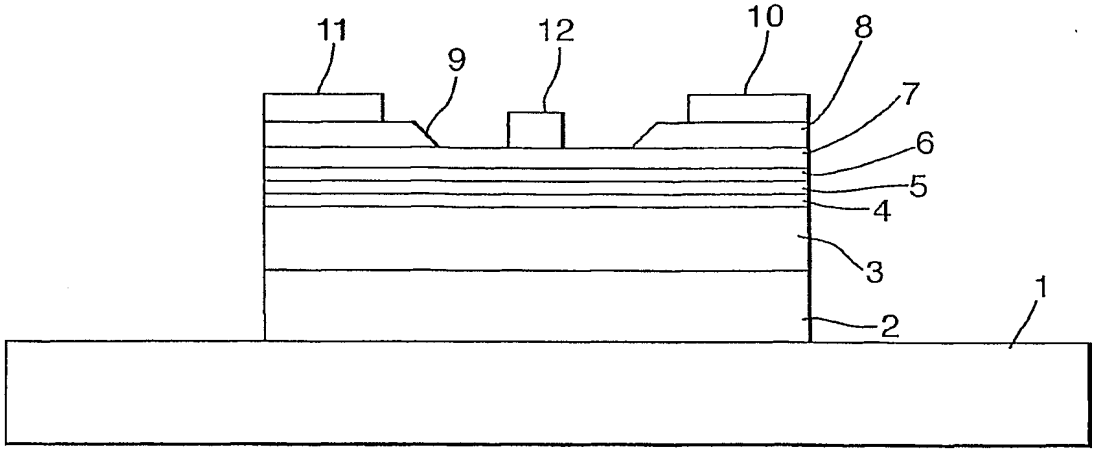
(54) Title: STRAINED SEMICONDUCTOR DEVICES



(57) Abstract: In a transistor in which the majority carriers are holes, at least one narrow bandgap region or layer is doped p-type or contains an excess of holes and is subject to compressive mechanical strain, whereby hole mobility may be significantly increased. In a p-channel quantum well FET, the quantum well InSb well p-type layer 5 (modulation or directly doped) lies between $In_{1-x}Al_xSb$ layers 4, 6 where x is of a value sufficient to induce strain in layer 5 to an extent that light and heavy holes are separated by much more than kT. Transistors falling within the invention, including bipolar pnp devices, may be used with their more conventional electron majority carriers counterparts in complementary logic circuitry.

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Published:
— *with international search report*

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